

WHAT IS CLAIMED IS:

1. A method for downloading and displaying a video program using a mobile terminal in an interworking environment that includes a first radio access network having a first data transfer rate and a second radio access network having a second data transfer rate that is faster than the first data transfer rate, the method comprising the steps of:

downloading, through the first or second radio access networks, the video program at respective first and second data transfer rates, the video program being downloaded at the second data transfer rate when the mobile terminal is in the coverage area of the second radio access network;

displaying the downloaded video program at a predetermined playback rate;

buffering excess portions of the downloaded video program that result when a rate at which the video program is downloaded exceeds the predetermined playback rate;

calculating a third data transfer rate, which is lower than the first data transfer rate, in response to the predetermined playback rate, the buffered excess portions and the time duration of the remainder of the video program; and

negotiating, with the first access network, the third data transfer rate for downloading the video program, when the difference between the first and third data transfer rates exceeds a threshold level.

2. The method of claim 1, wherein the third data transfer rate is equal to

$$R_p - B_t / T$$

where  $R_p$  is the predetermined playback rate,  $B_t$  is an amount of the buffered excess portions of the downloaded video program, and  $T$  is a time duration of the remainder of the video program to be played back.

3. The method of claim 1, further comprising the step of continuing to download the video program from the first radio access network using the third data transfer rate when the mobile terminal leaves the coverage area of the second radio access network and is within the coverage area of the first radio access network.

4. The method of claim 1, wherein the negotiating step is performed when the mobile terminal is within the coverage area of the second radio access network.

5 5. The method of claim 1, wherein the negotiating step is performed after the mobile terminal leaves the coverage area of the second radio access network.

6. The method of claim 1, wherein the first radio access network is a 3G cellular network.

10 7. The method of claim 1, wherein the second radio access network is a Wireless Local Area Network (WLAN).

8. A mobile terminal for downloading and displaying a video program in an interworking environment that includes a first radio access network having a first data transfer rate and a second radio access network having a second data transfer rate that is faster than the first data transfer rate, the mobile terminal comprising:

15 a receiver for downloading, through the first or second radio access networks, the video program at respective first and second data transfer rates, the video program being downloaded at the second data transfer rate when the mobile terminal is in the coverage area of the second radio access network;

20 a transmitter for transmitting data to the first or second radio access networks;  
a display for displaying the downloaded video program at a predetermined playback rate;

25 a memory device for buffering excess portions of the downloaded video program that result when a rate at which the video program is downloaded exceeds the predetermined playback rate; and

30 a processor for calculating a third data transfer rate, which is lower than the first data transfer rate, in response to the predetermined playback rate, the buffered excess portions and the time duration of the remainder of the video program, the processor controlling the negotiation of the third data transfer rate with the first access network for downloading the video program when the difference between the first and third data transfer rates exceeds a threshold value.

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9. The mobile terminal of claim 10, wherein the third data transfer rate is equal to

$$R_p - B_t / T$$

5 where  $R_p$  is the predetermined playback rate,  $B_t$  is an amount of the buffered excess portions of the downloaded video program, and  $T$  is a time duration of the remainder of the video program to be played back.

10 10. The mobile terminal of claim 10, wherein the receiver continues to download the video program from the first radio access network using the third data transfer rate when the mobile terminal leaves the coverage area of the second radio access network and is within the coverage area of the first radio access network.

15 11. The mobile terminal of claim 10, wherein the third data transfer rate is negotiated when the mobile terminal is within the coverage area of the second radio access network.

20 12. The mobile terminal of claim 10, wherein the third data transfer rate is negotiated after the mobile terminal has left the coverage area of the second radio access network.

13. The mobile terminal of claim 10, wherein the first radio access network is a 3G cellular network.

25 14. The mobile terminal of claim 10, wherein the second radio access network is a Wireless Local Area Network (WLAN).